

A PROSPECTIVE STUDY OF DISTAL HYPOSPADIAS IN A TERTIARY CARE HOSPITAL

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Abstract

Introduction: Hypospadias is one of the most common congenital malformation affecting the external male genitalia. The incidence is approximately 1 in 250 male newborns, although its incidence seems to be increasing. Hypospadias is defined as an insufficient development of the urethral fold and the ventral foreskin, with or without penile curvature. The urethral opening is located more proximally anywhere between the tip of the penis and the perineum.

Materials and Methods: It was a prospective study conducted on 30 patients admitted during the period from January 2022 to December 2022 at Department of Paediatric Surgery, Kurnool Medical College and Govt general Hospital, Kurnool, AP. Patients with 4 types of hypospadias (glanular, coronal, subcoronal, and distal penile hypospadias) were selected for this study. But, recurrent cases of anterior, fresh, or recurrent proximal hypospadias cases were not taken for this study. A self-structured proforma was used to collect the data such as demographic details, perioperative assessment, intraoperative complications, and postoperative period including complications after procedure and on follow-up. Duration of catheterization and hospital stay were also recorded.

Results: A total of 30 male patients of anterior & distal penile hypospadias were selected for this study. The age of the patients was between 16 and 144 months, and the mean age was 57.12 ± 35.12 months (Table 1). The mean duration of catheterization was 3.75 ± 1.23 days (Table 1). The mean length of hospital stay was 2.83 ± 1.33 (Table 1). We found 52.50% were subcoronal, 40% were distal penile type, only 7.50% cases were of glandular type. Each patient was assessed perioperative after the induction of anesthesia. We found that 3 folds urethral length mobilization allows tension free urethral anastomosis.

Conclusion: Although perhaps only useful in Anterior and distal hypospadias repairs, the Mobilization and Advancement of urethra technique seems to be a good method with satisfactory cosmetic and functional results, avoiding the need for a second layer of tissue covering during

repair with no chance for development of urethra-cutaneous fistula. About 3-fold urethral mobilization length is adequate to prevent chordee and achieve tension free urethra-glanular anastomosis. Postoperative management is simple and a brief hospital stay is sufficient.

Key Words: Hypospadias, Mobilization, Postoperative management, distal penile hypospadias.

INTRODUCTION

Hypospadias is one of the most common congenital malformation affecting the external male genitalia. The incidence is approximately 1 in 250 male newborns, although its incidence seems to be increasing.¹

Hypospadias is defined as an insufficient development of the urethral fold and the ventral foreskin, with or without penile curvature. The urethral opening is located more proximally anywhere between the tip of the penis and the perineum.²

Hypospadias classification is based on the position of the meatus, within three categories: distal or anterior hypospadias with the meatus on the glans penis, at the corona, or subcoronal.³

Mid-penile hypospadias with an urethral opening located on the distal penile shaft, midshaft, or on the proximal penile shaft. Proximal or posterior hypospadias have a penoscrotal, scrotal, or perineal urethral meatus location. Distal hypospadias is the most common finding in the Western world. In Asia more proximal forms are observed.⁴

It is associated with other congenital anomalies such as undescended testis, inguinal hernia, intersex disorders and persistent Mullerian structures. Chordee is associated in one fourth of the hypospadias cases. Chordee is classified into mild (10-20), moderate (30-40), and severe (>50) degree per-operatively by Horton test after degloving the penis. The choice of the procedure is based on the characteristics of the urethral plate irrespective of the meatal location.⁵

MATERIALS AND METHODS

Study design: A prospective study.

Study location: Department of Paediatric Surgery, Kurnool Medical College and Govt general Hospital, Kurnool, AP.

Study Duration: January 2022 to December 2022

Sample Size: 30 patients.

It was a prospective study conducted on 30 patients admitted during the period from January 2022 to December 2022 at Department of Paediatric Surgery, Kurnool Medical College and Govt general Hospital, Kurnool, AP.

Selection Criteria

Patients with 4 types of hypospadias (glanular, coronal, subcoronal, and distal penile hypospadias) were selected for this study. But, recurrent cases of anterior, fresh, or recurrent proximal hypospadias cases were not taken for this study.

Data Collection Technique

A self-structured proforma was used to collect the data such as demographic details, perioperative assessment, intraoperative complications, and postoperative period including complications after procedure and on follow-up. Duration of catheterization and hospital stay were also recorded.

Data Analysis Technique

An informed written consent was taken from the parents of all patients included in the study. All the patients were followed up in the outpatients' clinic and continued for 3 months to record any complications. The collected data was entered and analyzed by using SPSS version 26.

Surgical Technique

All the operations were performed under general anesthesia with caudal block by a pediatric surgeon who is experienced in hypospadias surgery. At the beginning of the operation, incision lines were outlined and marked. A tourniquet was employed. A traction suture was placed through the glans, and a 6–8-Fr catheter was passed into the bladder. A circular incision was made dorsally at 3mm proximal to the corona. Ventrally, the opening was made proximal to the urethral meatus.

The penile skin was degloved down to the penoscrotal junction, liberating any cutaneous chordee. An artificial erection test was conducted to see if there is any residual chordee. The urethral meatus was circumscribed by means of sharp dissection and mobilization started. The ventral glans was slit deeply into the corpora cavernosa followed by excision of excess mucosa on both sides and the glans wings were mobilized laterally.

The glandular bed was prepared and then the mobilized urethra was placed in it. The dorsal lip of the urethra was sutured to the glans tip with interrupted 6/0 polyglactin sutures. The two glans wings were approximated over the urethra with 6-0 PDS sutures. The meatal anastomosis was accomplished by introduction ventral lateral sutures. The excess penile skin was resected. The skin was re-approximated with 6-0 absorbable sutures, and dressing was applied around the penis.

The catheter was protected with a glanular suture. The dressing was removed after 3 days. Antibiotic ointment was applied to the penis for 2 weeks.

RESULTS

A total of 30 male patients of anterior & distal penile hypospadias were selected for this study. The age of the patients was between 16 and 144 months, and the mean age was 57.12 ± 35.12 months (Table 1). The mean duration of catheterization was 3.75 ± 1.23 days (Table 1). The mean length of hospital stay was 2.83 ± 1.33 (Table 1). We found 52.50% were subcoronal, 40% were distal penile type, only 7.50% cases were of glandular type. Each patient was assessed perioperative after the induction of anesthesia. We found that 3 folds urethral length mobilization allows tension free urethral anastomosis.

Complications were divided into perioperative and postoperative. The most common immediate postoperative complication was hematoma seen in five (8.3%) cases; all patients with hematoma were managed conservatively. Only one patient had wound infection. After 2-3 weeks of surgery, four (6.6%) patients had narrow urinary stream and labeled as stenosis; these patients were managed with urethral dilatation weekly for 2 to 3 weeks. At 3 months follow-up, 93.3% patients had slit-like meatus and good urinary stream (Table 2).

Parameter	Mean ± SD
Age (Months)	57.12±35.12
Duration of catheterization (days)	3.70±1.20
Length of hospital stay(days)	2.80±1.30

Table 1: mean age, duration of catheterization, and length of hospital stay of patients (N=30)

N=30		N (%)
Preoperative	Excessive bleeding	0(0%)
	Urethral Injury	1(1.6%)
	Failure of urethral advancement	0(0%)
Postoperative	Wound site infection	1(1.6%)
	Stenosis	4(6.6%)
	Hematoma	5(8.3%)
	Retraction	0(0%)
	Urethral Fistula	0(0%)
	Chordae	0(0%)
	Torsion	0(0%)
Urethral ischemia	0(0%)	

Follow-up at 3 months	Meatus shape	
	Slit like	28 (93.3%)
	Narrow	2(6.6%)
	Urinary stream	
	Good	28 (93.3%)
	Poor	2(6.6%)

Table 2: Complications and finding on follow-up

DISCUSSION

Hypospadias is classified in various types on the basis of meatus location, i.e., glanular, subcoronal, coronal, distal, mid-penile, proximal, penoscrotal, scrotal, and perineal. Many techniques have been described to correct anterior hypospadias, like Mathieu procedure and its modifications, they have the drawback of precarious blood supply and breakdown of this repair must occur occasionally.⁶

Primary draw backs of original meatal advancement and glanuloplasty (MAGPI) are meatal regression and stenosis. Tabularization techniques like glans approximation procedure Tubularized incised plate urethroplasty (TIP) repair gained popularity for correction of anterior hypospadias; however, its results depend upon the characters of urethral plate, together with an incidence of, disruption, fistula and meatal stenosis.⁷

The patients with anterior hypospadias were aged between 16 and 144 months. Hammouda et al. corrected the anterior hypospadias in a similar age group. We found the mean time for removal of catheter as 3.75 ± 1.23 days, and the results were comparable with Hammouda et al. as they kept the catheter for 24 h after urethral mobilization.⁸

However, Hashish et al. reported that they removed the catheter immediately after surgery. The result of the present study showed that the mean hospital stay was 2.83 ± 1.33 , while Hashish et al. mentioned that the hospital stay was 2 to 10 days. Urethral mobilization should begin proximally, where the urethra is completely surrounded by spongiosal tissue, and not distally, where the spongiosal tissues splays away laterally.

The used technique brings the urethra deeper inside the glans with wide slit-like (elliptical) orthotopic meatus. We found that folds urethral length mobilization allows tension free urethral anastomosis in case of anterior hypospadias. Atala et al. described 4-5 folds urethral mobilization to gain tension free urethral anastomosis. The extent of advancement of the urethra within its corpus ranged from 0.6 to 2.1cm, in agreement with other reports where the maximum length for urethral advancement was 1.519 and 2.5cm respectively.⁹

In our study, hematoma was seen in three (7.5%), and wound infection in one patient. Atala also operated with a similar technique and found hematoma in one patient and urethral retraction in

two patients; however, infection rate was not mentioned. We saw no urethra-cutaneous fistula or urethral stricture after UMA procedure, and our results were comparable with various authors.¹⁰

CONCLUSION

Although perhaps only useful in Anterior and distal hypospadias repairs, the Mobilization and Advancement of urethra technique seems to be a good method with satisfactory cosmetic and functional results, avoiding the need for a second layer of tissue covering during repair with no chance for development of urethra-cutaneous fistula. About 3-fold urethral mobilization length is adequate to prevent chordee and achieve tension free urethra-glanular anastomosis. Postoperative management is simple and a brief hospital stay is sufficient.

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